



KneTex

Aim of the project

The KneTex research project is focused on the development of a textileintegrated sensor system for feedback-supported rehabilitation following anterior cruciate ligament surgery. The aim of this research project is to develop a knee support with integrated sensors to identify harmful movements and a feedback function for immediate correction of the incorrect movement.

Relevance of the project

The KneTex knee support is designed to detect and localize unhealthy movement patterns by recording the position and angle of the knee, the relevant leg muscles and the context of movement. Harmful movement patterns are to be corrected immediately using appropriate feedback actuators. It enables a reduction in the recurrence and complication rate of patients with surgically treated anterior cruciate ligament ruptures and independent use by the patient in everyday life.

Innovative approach

The combination of methods from textile technology, sensor technology, embedded IT with corresponding analysis procedures and actuator technology using innovative technology in the design of the electronic components not only serves to record the position and angle of the knee, but also the activity of the relevant leg muscles and the movement context in fine resolution.



Modern feedback methods ensure that the movement sequence is directly influenced at the moment of the event while at the same time reorienting the movement sequences in the long term.

Simple application, even in the home environment, is determined by robustness in use with scientifically based evaluation of effectiveness and user acceptance.

Acknowledgement

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Project partners

- Institute for Experimental Psychophysiology (IXP)
- Bache INNOVATIVE
- · Niederrhein University of Applied Sciences, Faculty of Healthcare
- Niederrhein University of Applied Sciences, Department of Electrical Engineering and Computer Science
- · Niederrhein University of Applied Sciences, Department of Design

More information

- www.efre.nrw.de
- www.researchgate.net/project/KneTex

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